

# **UTILITY APPLICATION**

**OF**

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**FOR**

**UNITED STATES PATENT**

**ON**

**ADJUSTABLE BREAKAWAY LANYARD**

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**UNITED STATES PATENT APPLICATION FOR:**

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**ADJUSTABLE BREAKAWAY LANYARD**

5 **Cross-References to Related Application**

This application claims the benefit of U.S. Provisional Application No. 60/401,973, filed on August 7, 2002, the entire contents of which are hereby incorporated by reference.

**BACKGROUND**

10 Many people in the workplace perform tasks where both hands are needed, and other items must be kept within easy reach. For example, a nurse or doctor may need both hands to perform an examination, and also need thermometers, catheters or similar devices to be instantly accessible. For others, such as joggers and other athletes that wear athletic attire that lack pockets, storage and security of personal items is an issue. Several prior art devices have  
15 been developed to address these needs. While these prior art devices have been useful, there remains a need for an improved carrying device that is suspended from the user's neck.

**SUMMARY**

Exemplary embodiments disclosed herein are directed to adjustable breakaway lanyard  
20 devices useful for storing and/or carrying essential items in a secure, accessible location, while providing an improved exterior coating for the lanyard itself, and a more reliable and effective friction device. One exemplary embodiment includes a flexible cord or flat webbing that can form a collar for carrying various objects around the neck. The ends of the flexible cord may be coated with a polymeric material and tapered near the bottom portion of the cord end to

substantially reduce the tension needed for separation in case of an emergency. The cord or webbing is in engagement with a curved slideway within a housing, and may be releasably attached to a container by a snap/buckle type fitting. The device may also include either single or dual end clips for protecting the cord ends from fraying and other damage and may further include fasteners for securing the lanyard ends to clothing or protective gear in order to minimize uncontrollable dangling of the lanyard ends. The snap fitting of the lanyard device may also allow a wearer to remove the container without having to remove the entire lanyard. Alternatively, in another exemplary embodiment, the container may include a loop device configured to work in conjunction with a J-hook for holding hanging items such as ID cards.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

Figures 1a-1h show several views of the slideway employed in exemplary embodiments;

Figures 2a-2c show several perspective and cross sectional views of an exemplary embodiment employing rubber dipped free ends;

Figures 3a-3e show perspective and cross sectional views of another exemplary embodiment of the adjustable breakaway lanyard employing dual end clips and tapered ends;

Figures 4a-4c show several perspective and exploded views of an exemplary embodiment of the single clip configuration that includes an attachment member;

Figures 5a-5d depict several perspective and cross sectional views of a hook-compatible embodiment;

Figures 6a-6h depict perspective and cross sectional views of an embodiment employing a snap engagement for connecting the lanyard to a releasable container;

Figures 7a-7f depict various views of an exemplary embodiment of the adjustable breakaway lanyard as configured to support a lighter; and

Figures 8a-8g depict various views of the slideway mechanism used with the lighter embodiment.

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## **DETAILED DESCRIPTION**

The detailed description set forth below in connection with the appended drawings is intended as a description of exemplary embodiments and is not intended to represent the only forms in which the exemplary embodiments may be constructed and/or utilized.

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One exemplary embodiment includes a lanyard **200** with two free ends **202** in engagement with a slideway **201**, with an integral container **203**. In one exemplary embodiment, the free ends **202** of the lanyard **200** may be attached to an end device (not shown). In an alternative embodiment, the free ends **202** may be dipped in a polymeric material such as a soft rubber in order to provide crimping for the lanyard and/or to add weight to the free ends **202** for stability. The slideway mechanism **201** of the invention is illustrated in Figures 1a-h. Referring to Figure 1a, a slideway opening **100** is shown as generally elliptical orifice that can accommodate lanyards of various shapes. However, as those skilled in the art will appreciate, the slideway opening **100** may have a plurality of cross-sectional shapes. Figure 1d shows the slideway **201** in cross-section, and depicts the curved shape of slideway opening **100** in relationship to an exemplary container **203**.

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Referring to Figure 2b, the lanyard **200** is looped, and passed through slideway **201** so that free ends **202** may dangle below container **203**. The lanyard **200** may be of a natural or polymeric material, and may be of any cross-sectional shape, such as round, elliptical,

rectangular, or any shape that functions adequately with the friction slide. The lanyard **200** may also be in the shape of a substantially flat web.

As shown in Figures 2a-2c, the slideway **201** comprises a protrusion extending from container **203** that defines a slideway opening **100**. The opening **100** may be of any shape, and are depicted in an elliptical shape here in order to accommodate lanyards **200** of any cross sectional shape, or of a flat web configuration. The opening **100** is positioned so that the passage follows a curved path resembling the letter "J". The opening **100** is also sized to provide sufficient friction to the lanyard **200** to hold container **203** in place over a locus of points along the length of the lanyard **200** while permitting ease of movement of the lanyard **200** for adjustment or quick release.

Also, the container **203** as depicted in Figures 2a-2c is cylindrical in shape but may be of any shape, such as, but not limited to, rectangular or conical. The container **203** has an interior wall **101** of cylindrical or elliptical shape designed to frictionally engage the ends of stored objects such as lip balm, pens, markers or other similarly sized items.

In one exemplary embodiment, the free ends **202** of lanyard **200** may be dipped in a soft, pliable rubber material **204** that finishes or crimps the ends of the lanyard, and also provides stability to the lanyard ends. The free ends **202** may also act as stoppers, preventing the friction/slide device or other attachments from sliding off of the free ends of the lanyard. As a safety feature, these coated free ends **204** will pull through the friction/slide device under one pound or more of force in an emergency breakaway situation. For example, if the lanyard **200** became entangled in machinery while being worn by a person, one pound of pressure

would be sufficient to pull the lanyard **200** free and to prevent the injury or possible strangulation of the wearer.

Turning to Figure 3c, another exemplary embodiment of the lanyard **200** may include end clips **400**. The end clip **400** may be formed as a single piece or may be constructed of two  
5 pieces with snap fittings. The end clip **400** acts as a stabilizing device for the lanyard **200**, and also enables a safety breakaway mechanism. The end clip **400** depicted in Figure 3c includes an outer surface defining a circular bore, but, as those skilled in the art will appreciate, the bore may be shaped to accommodate the shape of the lanyard **200**, such as, but not limited to, a flat web lanyard configuration. Figure 3e shows a cutaway view of end clip **400** and the  
10 optional tapered lanyard end **401** which operates similarly to other previously described safety breakaway features. The tapered end **401** is depicted here as conical, but any shape of taper may be suitable so long as the cross-sectional area of the lanyard **200** decreases substantially near its end and then returns to normal size at its end. The effect of this feature is to reduce the force necessary to implement the breakaway feature during an emergency. As with the  
15 previous embodiment, the free ends **202** may be coated with polymeric material to prevent fraying, although the coating in this embodiment should be relatively thin.

Another exemplary embodiment utilizes an end clip configuration **400** as illustrated in Figures 4a-4c. As shown in Figure 4a, the end clip configuration **400** comprises female member **402** and male member **403**. According to one embodiment, the female member **402**  
20 includes at least one, and preferably two openings **404** configured to receive protrusions **405** in locking engagement. As shown in Figures 4a-4c, the end clip **400** includes two openings **404**.

The members **402**, **403** include semicircular depressions **406**, which form circular passages when the members are joined, to accommodate round lanyards or any lanyard that will fit within the passages. In an alternate embodiment, the members **402**, **403** may have rectangular depressions **407** to accommodate rectangular web lanyards in the same manner.

5 The members **402**, **403** are depicted in Figures 4a-c in an elliptical shape but may be round, rectangular or polygonal.

Clip member **409**, shown in Figure 4b, may be placed on the outer surface of either member **402** or member **403** but is shown in Figure 4a-c in an elliptical shape, but may be round, rectangular or polygonal.

10 The clip member **409** may be placed on the outer surface of either the female member **402** or the male member **403**, as shown in Figures 4a-c. The clip member **409** comprises a rectangular tab biased to rest against the outer surface of member **403**. The bias of the clip member **409** may be accomplished by the curvature of the tab as shown in Figure 4a-c. Alternatively, the bias may be accomplished by a hinge mechanism, spring mechanism, or any

15 other biasing means known to those skilled in the art.

In use, the clip member **409** secures the dangling ends of the lanyard **200** to the clothing of the wearer. Accordingly, the risk of the lanyard **200** being caught in machinery or interfering with the activity of the wearer may be minimized. This embodiment can also employ a tapered lanyard configuration, or rubber-dipped ends as described above.

20 In the exemplary embodiment illustrated in Figures 5a-5h, the slideway body **500** is configured to engage a hook-type device, such as a "J-hook" for a name tag. As shown in Figure 5b, slideway **201** operates as previously described for receiving the lanyard **200**.

Referring to Figure 5c, loop **501** protrudes from the slideway body **500** and defines opening **502**, which is depicted here as circular but may be triangular, rectangular or polygonal.

In use, a user would attach tools, implements, nametags, or the like configured with attachment devices such as clips, hooks, or the like by inserting the attachment device through opening **502**. Such an arrangement allows a user to attach and detach articles without removing the lanyard from the user's body.

Figures 6a-6d illustrate another exemplary embodiment that allows a detachable container **600** to be releasably connected with a lanyard by using a snap-fitting tab **601** similar to a belt buckle. As depicted in Figure 6b, the slideway **201** operates as previously discussed. The snap-fitting tab **601** protrudes from horizontal surface **602**, and may be substantially rectangular or polygonal. The snap-fitting tab **601** includes lip **604**, which may be integral to snap-fitting tab **601** as shown in Figure 6d or a separate piece bonded to snap-fitting tab **601** as shown in Figure 6b. The snap-fitting tab **601** functions as a male member that lockingly engages a female receptor (not shown) incorporated into any of the previously and subsequently disclosed containers or attachments. This exemplary embodiment allows articles of any shape that do not have hook-type attachments to be placed into a container that can be removed without removing the entire lanyard from the wearer's neck.

Figure 7 depicts another exemplary embodiment that is configured to support a lighter **701**. Figure 7b depicts lighter **701** and end plug **700**. While Figure 7b shows the end plug **700** as having a substantially flat surface **702** for secure coupling to lighter **701** by pressure, an adhesive or any other suitable fastening method known in the art, or any previously disclosed embodiment such as the buckle of Figure 6 may be used in this embodiment.

Figure 8 illustrates an exemplary slideway mechanism **700** that can be used with the lighter embodiment of Figure 7. Referring to Figures 8a-8b, the slideway **100** (as best shown in Figure 8e) operates as previously described. Figure 8g shows the surface **702** in greater detail with lip **800** being configured for a semi-permanent connection with a lighter.

5        While the present invention has been described with regards to particular embodiments, it is recognized that additional variations of the exemplary embodiments may be devised without departing from the inventive concept.